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Crossed testicular ectopia, a rare congenital anomaly of the male genitalia, a case report

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Abstract Crossed testicular ectopia (CTE) is a rare congenital anomaly of testicular descent in which migration of one testis towards the opposite inguinal canal. The ordinary presentation is that of ipsilateral inguinal hernia and contralateral cryptorchidism. Here, a 2-year-old boy presented in surgical outpatient department with right inguinal hernia and impalpable testis in left scrotum and inguinal canal. Right herniotomy was performed. Left testis was brought to the left scrotum through transceptal window.

Key Words Crossed or transverse testicular ectopia; inguinal hernia; orchidopexy; undescended teses.

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INTRODUCTION

Crossed testicular ectopia (CTE), which is also called transverse testicular ectopia, is an uncommon anomaly in which both testes migrate toward the same hemiscrotum [1,2]. The ectopic testes can found in the opposite groin or hemiscrotum and at the deep inguinal ring [3]. The clinical findings frequently are, on one side, a symptomatic inguinal hernia, to which the ectopic testes have migrated, and, on the other side, an impalpable undescended testis [4]. In most cases, an accurate diagnosis is made during

an operation for repair of the inguinal hernia [3]. Abnormalities associated with CTE known as persistent Mullerian duct syndrome (PMDS), true hermaphroditism, inguinal hernia, hypospadias, pseudohermaphroditism, and scrotal anomalies [5-7].

Here, we present a case in which had a prediagnosis of a right inguinal hernia and contralateral impalpable undescended testis was made and an operation in which CTE was found.

CASE REPORT

A 2-year-old boy presented with right inguinal swelling. The left hemiscrotum was empty, and no testis was palpable in the left inguinal canal. A sight inguinal hernia was diagnosed, and a herniotomy was planned. During exploration of the right spermatic cord, both testes were delivered in the wound. Each had its own spermatic cord, fused proximally at the deep inguinal ring for few centimeters. Both testes had separate vasa deferentia and vascular pedicles and were almost equal and normal in size (Fig. 1). After a right herniotomy, both testes were fixed in their respective hemiscrotum. The left testis was placed in the left hemiscrotum through a transceptal window and fixed in the subdartos pouch. Postoperatively, pelvic ultrasonography and magnetic resonance imaging (MRI) of the pelvis and abdomen were performed to rule out Mullerian duct remnants and other anomalies.

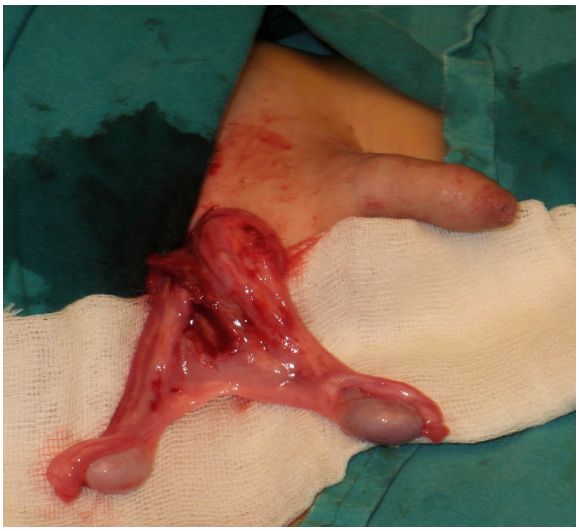

Fig. 1. Operative view of crossed testicular ectopia protruding from right inguinal incision.

DISCUSSION

The presence of ectopic testes has been reported in different sites, such as caudal to the external ring, in the femoral area, and in suprapubic, perineal, and penile positions [1,2]. CTE is a rare congenital anomaly of testicular migration in the same

hemiscrotum of both testes. It was first reported by Lenhossek in 1886 as an autopsy finding [6]. Since then, more than 100 cases have been reported. Here, we present a case of CTE with rarely seen diagnosis and treatment approaches.

Several embryological theories explaining the origins of CTE have been reported. There is a direct relationship between testicular ectopia and the development of the gubernacula. The gubernacula are divided into five slips, one going to each ectopic site. During testicular descent, testes follow the bulk of the gubernacula in the scrotum. When one of the other four branches contains most of the gubernacula, the testes are determined to be in an ectopic location [8,9]. Campbell [10] suggested that CTE is, in fact, a unilateral development of two testes, and the contralateral testis also develops but is retained in the abdomen. The superficial inguinal pouch, lateral to the external inguinal ring, is the most common location of ectopic testes. CTE is the rarest of all types of aberrant descent but probably shares some of the same mechanisms. Berg [11] suggested that both testes arise from the same genital ridge. Kimura [12] defined true CTE as present only if there are two distinct deferent ducts and a common duct revealing the development of the testes from one genital ridge. Gupta and Das [13] proposed that adherence and fusion of the developing Wolffian ducts takes place early and that the descent of one testis caused the second to follow it toward the same hemiscrotum. PMDS might result from the failure to synthesize or release Mullerian duct inhibitory factor (MIF) or to respond to MIF, as well as the timing of the release of MIF. It seems possible that the mechanical effect of the PMDS prevents testicular descent or causes both testicles to descend toward the same hemiscrotum, resulting in CTE [7]. In CTE associated with cryptorchidism increases the potential for malignancy.

CTE is frequently associated with an inguinal hernia. Genitourinary anomalies, including hypospadias, seminal vesicle

cysts, renal agenesis, and PMDS, are also found but less frequently [14]. Based on the presence of the associated anomalies, CTE has been classified into 3 types: Type 1, accompanied only by hernias (40%–50%); Type 2, accompanied by persistent or rudimentary MDS (30%); and Type 3, associated with disorders other than persistent Mullerian remnants (e.g., hypospadias, pseudohermaphroditism, scrotal abnormalities) (20%) [3,15].

In the majority of patients, the typical clinical history is an inguinal hernia with contralateral undescended testis, and then CTE is usually discovered during exploration of a hernia. Important differential conditions include extra-testicular mass, such as hydroceles, epididymal cysts, varicoceles, spermatoceles, and hydroceles of the cord, and solid masses, such as lipomas and adenomatoid tumors, scrotal calculi, fibrous pseudotumors, adrenal rests, and polyorchidism [16,17].

There are a variety of approaches to the treatment of CTE. Most frequently, the hernia sac is released, and the attachment tissue of the testes is dissected. Next, the testes are brought down sequentially through the ipsilateral groin into the scrotum. When the length of the cords is adequate, dissection of the attachment tissue between the two testes might not be necessary. The crossed ectopic testis is positioned in the contralateral hemiscrotum through a transseptal incision, or both testes are left in the same hemiscrotum, alongside the other testes [18]. The diagnosis of our patient was made during operation. The surgical technique described here was the preferred treatment for our patient.

CONFLICT OF INTEREST

None declared.

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